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Room 4232  
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ADMINISTRATION

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After reading an article in this past December's *Trucker News*, after reading the News Release of  
**RELEASE RESULTS OF DRIVER FATIGUE STUDY** [Jan 13, 1997] at the DOT site:

[http://www.tc.gc.ca/nrelease/97\\_H006E.htm](http://www.tc.gc.ca/nrelease/97_H006E.htm)

and after considering that knowledge about human physiology is not an exact science, nor a science that today that can predict what all human beings will experience under the same conditions, as in the truck driving profession, I feel that it is my duty to make comments, speaking as and for many drivers [I think], in terms of citing aspects of this driver fatigue study along with my comments. These opinions are based upon my experiences and knowledge mainly, but also reflects others' opinions. As will be noted later, it is the drivers who have to contend with changes in legal mandates, and hopefully, their opinions are heard.

Drowsiness during driving is much more a function of time of day (circadian rhythm) effects than duration of driving time and cumulative number of days, based on the amount of daily driver sleep and the four to five days of driving observed in this study.

Overall, this assertion is true, but it fails to address periods of sleep deprivation, as caused by external events [e.g., "sleepless" nights in truck stops via loud motors or other noises], it fails to address working a seven day week, which is common to Over The Road (OTR) drivers, and it may not address the issue of drivers who drive during alternating night/day cycles, as in team drivers or even solo drivers, but rather may be discussing the traditional freight like drivers who go home or to the motel at the end of the day.

Little or no operationally significant differences in driver drowsiness and performance were identified between the daytime lo-hour U.S. and the 13-hour Canadian schedules during daytime driving for the various measures used.

For traditional freight like drivers, who get rested every night, yes. But, for an OTR driver who has periods of sleep deprivation, or who alternates night/day cycles, there will be periods of extreme drowsiness, and either the driver will "push-on," or will pull the truck over and catch up on sleep. As an aside, in the *Trucker News* [pg. 31], a survey of 101 state troopers indicated 90% have driven while drowsy, and 25% have fallen asleep at the wheel, and this suggests this finding may be biased towards day-time workers.

Drowsiness was much greater during nighttime (22:00-06:00) driving than during daytime driving. (An eight fold increase in drowsiness was indicated by face video recordings.)

It depends upon a driver's work/sleep cycle, and this generalization is invalid as stated since the conditions are not stated. A driver can be very much alert during these hours, which tend to be less stressful.

Drivers were poor judges of their own levels of fatigue and generally rated themselves more alert than they were. Their self-ratings tended to reflect duration of driving and cumulative number of trips, but not measured performance.

Interesting remark but what is the relevance? As an aside, people, like say politicians, have been overrating themselves for years, so what is new about self-exaggeration? Driving, as I will note later, consists of "attention to details" but being "fatigued" could denote multiple meanings since this concept is without a 'concrete' definition; attention to details can be measured, but fatigue is a relative concept.

Some drivers in this study did not manage their off-duty time to obtain an adequate amount of sleep, even when there was ample opportunity for sleep.

If some drivers do "not manage their off-duty time," then this is a behavioral problem; but if a driver's physiological state is active for conscious activities, then a driver can not "inform" his body to go to sleep.

An OTR driver may go to sleep for two hours, then wake up, and be quite alert/able to drive further, but legal mandates do not consider each driver's physiological states; drivers are physiological beings, and as such, statistically derived work/sleep rules tend to be irrelevant for maintaining good physiological states.

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The sleep shortfall (relative to their reported ideal) was greatest for those drivers who were required to sleep during the daytime.

Nothing new "under the sun" here! But many drivers, like teams or dedicated route drivers, have experienced sleep deprivation and cope without causing motor vehicle accidents, but a few do not. They also note that Continued research is needed, especially addressing effective fatigue countermeasures, but in reality 10 1, Sleep is the principal countermeasure to fatigue if and only if OTR drivers get restful sleep.

There is no quick fix and no single solution to the fatigue problem.

Changes in the hours of service regulations are needed, but they alone will not solve the fatigue problem.

Quite true, and solutions based upon statistical data or even the proposed voluntary performance-based system, or a modified version of the current prescriptive regulations will not solve this fatigue problem. You can not measure all mental aspects of a driver's "attention to details," only partial details. A driver could be in an extreme state of fatigue, but still maintain attention to relevant details; fatigue goes with the job, and each individual driver can/will be affected differently for a given set of stressors. For instances, two drivers could travel through congested traffic but one might have high levels of psychologic stress, which reduces this driver's attention to details dramatically; or one driver could only drive 7 hours while another driver 16 hours before equivalent "fatigue" states but this 16 hour driver may also be still attentive to relevant details before getting rest, whereas this other driver's reaction to psychologic stress reduces attention to relevant details at 7 hours of driving. The key to successful driving is in monitoring and focus of their attention to relevant details, not all the details, but the relevant details which change with changes in driving environments, and once this ability is waning, the driver must be aware of this mental state and take actions to obtain rest. This I think is the real intent for hours of service, but individualized physiologic needs are not addressed now; and mechanical or legal mandates can not address this issue. For instance, as a solo OTR driver, you may go after resting overnight for 2 hours and feel an intense need to catch a nap, or you may go for 10 hours and feel then very attentive, but legally, logging these erratic patterns of sleep may violate present Hours of Service (HOS), but physiologically, these types of drivers may tend to be better drivers. You can not "command" the body to sleep, now, but present HOS "demands" this action.

In all of my professional driving experiences with no accidents, and in all of the times driving "fatigued," it was when I was fully rested and wide awake that I nearly, by about 150 ft. distance, rear-ended a taxi cab that was traveling about 25 M.P.H. in a 55 M.P.H. zone (40 min, I think) on an Atlanta, GA. interstate road there around 10 A.M. Although in retrospect, I think this taxi driver was "looking" for an accident since he continued this speed for another mile in the right driving lane before pulling onto the shoulder after following him with my four-ways on, this potential accident was not related to fatigue but seeing sights or rather paying no attention to relevant details, which no physiological machine can detect, only radar might.

Statistically, there is a correlation to fatigue/accidents, but conversely, there is also a correlation between safe driving and fatigue, if the data is examined. I think it would show that team and solo OTR drivers are ail in some state of fatigue and/or sleep deprivation, but most do not encounter accidents; which suggests the majority are just plain lucky or have mastered some techniques of defensive driving and staying alert; to note an irony, it seems the minority is/will be affecting a majority when potential mandates take effect. Just a brief history, but it was the "federally" mandated CDL that was to do the trick, then it was drug testing, and now, there is a whole new set of technologic/training ideas to save the day; when will it stop?

The main key is mastering "attention to relevant details," and driver awareness of their mental states. If a driver is not aware, and goes into a "dazed" or "zombie" state of mind, either luck will prevail or not. Strict adherence to HOS will not prevent all accidents, only attention to relevant details will. Inattention to details is the relevant subject, but where is the "Top Gun" school; we spend millions to teach fighter pilots in the field/class, and in trucking, some think more education, more skills tests, and now high tech gadgets will save the day, but is there a subject that directly discusses these various mental states in terms of theory that an actual truck driver could understand and practice effectively, if so motivated. Further, what new effect will these electronic solutions have once a driver is "conditioned," will he wake up to see the crash. Thus, attention to relevant details [mind/vehicle control] are the keys for all drivers, but all will not practice daily.

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## SUGGESTIONS FOR CHANGES IN HOS & OTHER MATTERS

Before commenting, I think 3 points are relevant; two directly and one indirectly. The fatigue study noted: Drowsiness was much greater during nighttime (22:00-06:00) driving than during daytime driving, but the 1995 NHTSA *Traffic Safety Facts* noted: During the week, 74 percent of the crashes occurred during the daytime (6:00 AM to 5:59 PM). On weekends, 65 percent occurred at night (6:00 PM to 5:59 AM). There seems to be a paradox contrasting these observations since the fatigue study "suggests" drivers should be more prone to accidents at night, but NHTSA data suggest only during the weekends, not weekdays, and vehicular traffic I think is actually higher during weekdays; which should suggest more accidents then. Hence, their drowsiness observations [implying more accidents] seem to conflict with NHTSA findings.

Second point deals with how to solve a problem in another field. Law Enforcement Agencies [LEA], in the line of duty, indirectly kill about 1,000 people a year via high speed pursuits, mainly stolen cars, as I understand. If so, then even though penalties are light, LEA's are still using the same pursuit method but now some new/costly technology [simulators; helicopters; infrared cameras] is added. If they stopped high speed pursuits for car thefts, then about 1,000 lives could be saved each year; but apparently, they feel the means justifies the end. How much high tech and cost is required to reduce these deaths? It depends upon the involvement of this "Organization's Industrial Complex" [analogous to Military Industrial Complex] since all of these parties are focusing on this one method, better electronic gadgets for high speed pursuits. Is there a low tech method that does not involve high speed pursuits? Yes, just use two unmarked cars, which they do use for this purpose, and before turning on the red lights/sirens, have one car go in front of the stolen car, and have the other stay behind the car; at a traffic light or even driving along, then this vehicle could be boxed in, squeezed, and prevented from further movements. Other methods are possible, but the point is that present pursuit methods are based from "rear-end" approaches, not "front-end" tactics.

Third point is scientific since it is based upon past experiences/observations in the past twenty years. After obtaining a commercial license via written test only, and without usage of for 5 years, I was trained within a week for OTR deliveries to midwest sites. Several years after leaving this company, I worked as a temporary for a freight company, and years later, drove 6 months on a construction project, drove for farmers, custom cutters, and for a major OTR company. I've driven 500,000 plus miles through blizzards, torrential rain storms, extreme cold and hot temperatures, mountain passes, narrow and curved roads, flooded roads, extreme switch-back roads, high winds, rain storms, sleet storms, snow storms, large cities, etc., without any accidents. Based upon the fatigue's studies implied drowsiness conclusion and potential requirements needed for safe drivers, I in my first OTR driving job, along with my 100+ coworkers, should have more accidents since most were assigned to start work around 22:00-06:00, since we worked long hours, and since we were without proper training, as based upon today's/future requirements. I am not suggesting that long hours are good or that effective training be omitted, but thousands were trained on the job, and they have driven safely and without accidents despite violating HOS, and yes some had accidents.

Although these points/observations made throughout could be summed or expanded into a thesis, they represent the essence and brief overview of the trucking industry, but two points were omitted. Company interests versus driver interests can oppose each other since most companies want maximum miles for the least amount of expenses, and this can/has translated into long driver hours and neglected vehicular maintenance. Needless to say, fear of losing one's job or being 'blackballed' can cause "compliance" since drivers may perceive this as a "Catch 22" situation, complaining might lead to dismissal in their mind. So, HOS [other mandates] can be a "blessing" or a "curse" for drivers, and even if drivers follow adherence to HO'S, this too can be a curse since drivers can't command their physiological needs [sleep] via willpower.

And this is the crux of HOS, team or solo OTR drivers can't control their physiological needs at will, so if high tech surveillance, electronic logbooks, GPS tracking, is used to enforce HOS, then FHWA, like LEA, and companies will be indirectly causing accidents/incidents since all drivers, scientifically, can not obtain restful sleep for numerous reasons under all conditions encountered since they will always be, at various times, in some state of sleep deprivation or fatigue, and this can lead to inattentive driving and accidents.

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It should be noted that some of these comments exceed the narrow focus up for discussion/change, but if the real intent for change is safety, then these other matters may need to be addressed via other bodies. Further, after reading C. A. Snyder's article, "FHWA proposes new hours-of-service regs," it seems to be more of a "here are the options," and only these options will be addressed; but supposedly, scientific based findings, not nit picking like should be tougher rules for early morning driving, were suppose to be the real agenda. I have detailed specifically why HOS, scientifically, can be detrimental to any driver; I believe that those who regulate should spend several years driving to obtain a "real-time" reality based view. Thus, if the FHWA is analogous to LEA's methodology, then only 'relevant rear end tactics' can be discussed.

1. Standardized Teaching Curriculum - Understanding and testing [when possible] expected and potential driving conditions would be an effective means of teaching. Driver awareness of all aspects is the key.
2. Standardized Audio/Video Curriculum for All Motorist - Most automobile drivers do not fully grasp the limitations of trucks/trains, and if a well prepared 30 minute movie was show to all drivers, say at time of renewal, then their understanding and cooperation could decrease a few train/truck accidents; especially if laws were also based and changed upon these limitations, which they are car biased now.
3. Removal of Log Books - On a company by company basis with drivers who have more than 2 years experience, experiments using electronic or GPS recording devices could replace log books but not to be used for penalizing drivers via current regulations. Drivers would be allowed to make their own decisions with the proviso that if they were ever involved in an accident, they could lose their CDL for 2 years. Further, companies would also bare penalties; specifically if their drivers' average work times exceed an industry average, and if the electronic recorder shows unprudent driving practices. Unprudent implies, for instance, that if a driver has been working during the day and picks up a load at 5 PM., then expecting next day AM delivery to be delivered 500 miles overnight is very unprudent.
4. Should the FHWA seek legislation from Congress to regulate shippers and consignees to prohibit them from making demands on a motor carrier and its drivers that would cause a violation of the HOS rules?  
Two items not directly related: (1) With respect to loading/unloading trailers via drivers who do not do this on a daily basis, there should be legislation addressing this issue since our "customers" are 'breaking' our backs; it depends upon the nature of the unloading, but unloading 50,000 # on a 100 degree day by an out of shape driver will affect their driving performance for several days afterwards. (2) Overweight vehicles indirectly may affect HOS rules since extra driving time may be required; specifically, if shippers were required to pay overweight fines, as based upon net and not upon axle distribution, then overweight vehicles would be history and this increases the safety of roads/drivers.
5. Whether more driving time should be allowed for adverse driving conditions. If caught driving through a western state's blizzard on a seldom traveled road with a day's worth of fuel, where the nearest home is 75 miles away, should the truck be stopped because of potential HOS violation(s) if the wait for the snowplow might be several days? What does a prudent person do? Further, on another topic via question, if a driver determines on a Saturday evening that rest areas and truck stops are full, what does a prudent person do? Are all roadside entrance ramps available for safe haven?

Thomas J. Donohue , American Trucking Associations president stated "We need to set in motion new approaches that will allow truck drivers to operate more safely without sacrificing productivity." These goals are in conflict but agree with trying with new approaches. An ideal world for most OTR drivers, would be maximum work hours from 0700 to 2000, no log books, truck stops with billiard tables, swimming pools, tennis courts, hot baths, sleeping rooms, etc., but I rather doubt these accommodations are coming any time soon. In closing, I will explain my first driving experiences. Most of my runs were dispatched after sunset, and when that sun would rise in the morning, I had no choice but to catch a nap; hence, I have tried to place emphasis on my physiological needs and limitations, and drive safely. But.. . !

Sincerely,

  
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